

# SONY®

## White paper

May 2014



## Xperia™ M2 dual

S50h

Note: Screen images are simulated.

# Purpose of this document

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Sony Mobile Communications product White papers are intended to give an overview of a product and provide details in relevant areas of technology.

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# Document history

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Version		
February 2014	First released version	Version 1
March 2014	Second released version	Version 2
March 2014	Third released version	Version 3
March 2014	Fourth released version	Version 4
March 2014	Fifth released version	Version 5
April 2014	Sixth released version	Version 6
April 2014	Seventh released version	Version 7
May 2014	Eighth released version	Version 8
September 2014	Ninth released version	Version 9

## Sony Mobile Developer World

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For the latest technical documentation and development tools, go to [www.sonymobile.com/developer](http://www.sonymobile.com/developer).

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## Facts – dimensions, weight, performance and networks

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<b>Operating system</b>	Google™ Android™ 4.3 (Jelly Bean MR2)
<b>Processor</b>	1.2 GHz Qualcomm MSM8226-0 Quad Core
<b>GPU</b>	Adreno 305
<b>Size</b>	139.65 x 71.14 x 8.64 mm
<b>Weight</b>	148 grams
<b>Available colours</b>	Black White Purple
<b>Main screen</b>	
Colours	16,777,216 colour TFT
Resolution	540x960 pixels
Size (diagonal)	4.8 inches
Scratch-resistant	Yes – Touch panel cover glass
<b>Input mechanisms</b>	
Text input	On-screen QWERTY keyboard, 12 key input
Touch screen	Capacitive
Touch gesture	Yes – multi-touch, up to 4 fingers supported
Handwriting recognition	Yes
<b>Memory</b>	
RAM	1 GB
Flash memory	Up to 8 GB*
Expansion slot	microSD™ card, up to 32 GB
<b>Camera</b>	
Camera resolution	8 MP
Digital zoom	4x
Video recording	Yes – HD 1080p
Front Camera	Yes – VGA
<b>Sensors</b>	
Accelerometer	Yes
Ambient light sensor	Yes
Proximity sensor	Yes

Magnetometer	Yes
<b>Networks</b>	
S50h	UMTS HSPA+ 900 (Band VIII), 850 (Band V), 1900 (Band II), 2100 (Band I) MHz GSM GPRS/EDGE 850, 900, 1800, 1900 MHz
<b>Data transfer speeds</b>	
GSM GPRS (upload and download)	Up to 107 kbps (download), Up to 85.6 kbps (upload).
GSM EDGE (upload and download)	Up to 296 kbps (download), Up to 236.8 kbps (upload).
HSUPA (upload)	Cat. 6, up to 5.76 Mbps
HSDPA (download)	Cat. 10, up to 14.4 Mbps
<b>HAC/TTY</b>	
HAC	M3/T3
TTY	Yes
<b>Talk time (GSM)</b>	Up to 11 hours 14 min.**
<b>Standby time (GSM)</b>	Up to 580 hours**
<b>Talk time (UMTS)</b>	Up to 12 hours 2 min.*
<b>Standby time (UMTS)</b>	Up to 597 hours**
<b>Music listening time</b>	Up to 37 hours 2 min.**
<b>Video playback time</b>	Up to 7 hours 58 min.**
<b>Battery (Embedded)</b>	2330 mAh







\* Memory comprises of approximately of 3 GB firmware, plus 5 GB of “Internal Storage” for downloaded applications, music, pictures and movies, and some application data.

\*\* Values are according to GSM Association Battery Life Measurement Technique as performed in controlled laboratory conditions. Actual time may vary.

**NOTE:** Battery performance may vary depending on network conditions and configurations, and device usage.

**NOTE:** All performance metrics are measured under laboratory conditions.

## Categorised feature list

 <p><b>Camera</b></p> <ul style="list-style-type: none"> <li>8 megapixel camera</li> <li>4x digital zoom</li> <li>Auto focus</li> <li>Face detection</li> <li>Fast capture</li> <li>Flash/Photo light</li> <li>Geotagging</li> <li>HDR for pictures</li> <li>HD video recording (1080p)</li> <li>Image stabiliser</li> <li>Quick Launch</li> <li>Red-eye reduction</li> <li>Scene recognition</li> <li>Self-timer</li> <li>Send to web</li> <li>Superior Auto</li> <li>Smile shutter™</li> <li>Sony Exmor RS® for mobile</li> <li>Steady shot</li> <li>Sweep Panorama</li> <li>Touch capture</li> <li>Touch focus</li> <li>Video light</li> <li>Video stabiliser</li> <li>White balance</li> </ul>	 <p><b>Music</b></p> <ul style="list-style-type: none"> <li>Album art</li> <li>Bluetooth® stereo (A2DP)</li> <li>ClearAudio+</li> <li>Clear Bass™</li> <li>Clear Phase™</li> <li>Clear stereo</li> <li>Dynamic normaliser</li> <li>Manual equaliser</li> <li>PlayNow™ service*</li> <li>SensMe™</li> <li>TrackID™ music recognition*</li> <li>“WALKMAN” application</li> <li>xLoud™ Experience</li> </ul>	 <p><b>Internet</b></p> <ul style="list-style-type: none"> <li>Bookmarks</li> <li>NeoReader™ barcode scanner*</li> <li>Web browser (WebKit™)*</li> </ul>
 <p><b>Communication</b></p> <ul style="list-style-type: none"> <li>Call list</li> <li>Conference calls</li> <li>Friends application</li> <li>Hangouts™*</li> <li>HD voice support</li> <li>Loud Speaker</li> <li>Multiple IM</li> <li>Noise suppression</li> <li>Speakerphone</li> </ul>	 <p><b>Messaging</b></p> <ul style="list-style-type: none"> <li>Conversations</li> <li>Email</li> <li>Handwriting recognition</li> <li>Instant messaging</li> <li>Multimedia messaging (MMS)</li> <li>Predictive text input</li> <li>Text messaging (SMS)</li> </ul>	 <p><b>Design</b></p> <ul style="list-style-type: none"> <li>Auto rotation</li> <li>Gesture input</li> <li>Illumination effect</li> <li>On-screen 12-key keyboard</li> <li>On-screen QWERTY keyboard</li> <li>Picture wallpaper</li> <li>Screen capturing</li> <li>STAMINA mode</li> <li>Touch screen</li> <li>Voice input</li> <li>Wallpaper animation</li> </ul>



### Entertainment

3D games  
Media browser  
Motion gaming  
PlayMemories\*  
Radio (FM radio with RDS)  
Sony Entertainment Network\*\*  
Video streaming  
YouTube™\*



### Organiser

Airplane mode  
Alarm clock  
Calculator  
Calendar  
Contacts  
Document readers  
eCompass™  
Notes  
Setup guide  
Stopwatch  
Timer  
World clock



### Connectivity

3.5 mm audio jack (CTIA)  
ANT+™ sport, fitness, health support  
aGPS\*  
Bluetooth® 4.0 wireless technology  
DLNA Certified®  
GLONASS  
Media Transfer Protocol support  
Micro USB support  
Miracast  
Native USB tethering  
Media Go™\*  
NFC  
PC Companion  
Play Anywhere  
Smart Connect  
Synchronisation via SyncML™  
Synchronisation with computer  
Synchronisation via Microsoft® Exchange ActiveSync®  
USB High speed 2.0 support  
USB Host  
USB mass storage  
Xperia Link™  
WLAN  
WLAN Hotspot functionality

\* This service is not available in all markets.

\*\* Sony Entertainment Network with Music Unlimited is not available in every market. Separate subscription required. Additional terms and conditions apply.



# Technologies in detail

**NOTE:** The information outlined below is general and levels of compliance to standards and specifications may vary between products and markets. For more information, contact Sony Developer World or your Sony contact person where applicable.

## Device-to-device communications (local)

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### ANT+™ wireless technology

Connectable devices	ANT+™ devices require download of a supporting application
Frequency band	2.4 GHz
Data transfer rate	Up to 60 Kbps
Encryption	AES-128
Topologies	One to Many, Many to One, Peer to Peer, Star, Practical Mesh

## Bluetooth® wireless technology

Bluetooth® profiles supported	Advanced Audio Distribution Profile v1.2 Audio/Video Remote Control Profile v1.3 Generic Attribute Profile Client/Server over LE Handsfree Profile v1.6 (Wide band speech) Headset Profile v1.2 Human Interface Device Profile v1.0 Object Push Profile v1.1 Personal Area Networking Profile v1.0
Core version and supported core features	Version 4.0
Connectable devices	Products that support at least one of the profiles listed above. Bluetooth 4.0 accessories generally require installation of a supporting application.

More information:

[www.sonymobile.com/developer](http://www.sonymobile.com/developer)

[www.bluetooth.com](http://www.bluetooth.com)

**WAPI**

Supported standards	IEEE 802.11 a/b/g/n and WLAN WLAN Direct®, WLAN Protected Setup, WLAN CERTIFIED Miracast™
Connectable devices	WLAN access points WLAN Direct compatible devices
Frequency band	2.4 GHz / 5 GHz
Data transfer rate	Up to 150 Mbit/s
Security	Open Authentication Shared Authentication EAP-SIM EAP-AKA EAP-TLS EAP-TTLS/MSCHAPv2 PEAPv0/EAP-MSCHAPv2 PEAPv1/EAP-GTC WPA Personal and WPA2 Personal WPA Enterprise and WPA2 Enterprise
Encryption	WEP 64 bit, WEP 128 bit, TKIP and CCMP (AES)
Power save	WMM-UAPSD
QoS	WMM

## Messaging

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### MMS (Multimedia Messaging Service)

According to OMA Multimedia Messaging Service v1.0 + SMIL

### Email

Bearer type (IP)	GPRS, EGPRS, UMTS, WLAN
Character sets	BIG5 Traditional Chinese GB2312 Simplified Chinese GB18030 ISO-2022-JP Japanese ISO-8859-1 ISO-8859-2 Eastern Europe ISO-8859-5 Cyrillic ISO-8859-7 Greek ISO-8859-9 Turkish ISO 8859-11 KOI8-R Cyrillic Shift_JIS Japanese USASCII UTF-16 UTF-8 Windows® 874 Windows® 1251 Cyrillic Windows® 1252 Windows® 1254 Turkish Windows® 1258 Vietnamese
Protocols	POP3 and IMAP4
Push email	Microsoft® Exchange ActiveSync® (EAS)
Secure email	SSL/TLS, both port methods (POPS/IMAPS) and START-TLS
HTML mail	Yes (read only)

More information:

[www.sonymobile.com/developer](http://www.sonymobile.com/developer)

[www.openmobilealliance.org](http://www.openmobilealliance.org)

## Positioning – location based services

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Supported standards:

- OMA Secure User Plane Location (SUPL) v1.0
- 3GPP™ Control Plane location (including Emergency location), only supports E911
- Qualcomm® GPSTOneXtra

## Provisioning (OMA CP)

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OMA CP version 1.1

## Multimedia (audio, image and video)

<b>Audio Playback</b>	<b>Decoder format</b>	<b>Supported in file format</b>
	Audio decoding MPEG-1/2/2.5, audio layer 3	MP3 (.mp3), 3GPP (.3gp), MP4 (.mp4, .m4a)
	AAC, AAC+, eAAC+	3GPP (.3gp), MP4 (.mp4)
	AMR-NB, AMR-WB	3GPP (.3gp), MP4 (.mp4)
	General MIDI (GM)	SMF (.mid)
	Linear PCM 16bit	WAV (.wav)
	OTA	OTA (.ota)
	Ogg vorbis	Ogg vorbis (.ogg)
<b>Audio Recording</b>	<b>Encoder format</b>	<b>Supported in file format</b>
	AMR-NB, AMR-WB	3GPP (.3gp), MP4 (.mp4), AMR (.amr)
	AMR-NB, AMR-WB, AAC-LC stereo Sample rate: 48 kHz Bit rate: up to 384 kbps	3GPP (.3gp), MP4 (.mp4)
<b>Image Playback</b>	<b>Decoder format</b>	<b>Supported in file format</b>
	1, 4, 8, 16, 24 and 32 bpp and RLE encoded formats	BMP (.bmp)
	Single and multi-frame, bitmap mask support (GIF87a format and GIF89a format)	GIF (.gif)
	Joint Photographic Experts Group	JPEG (.jpg)
	Portable Network Graphics Bitmap mask support	PNG (.png)
	Wireless Bitmap	WBMP (.wbmp)
<b>Image Capture</b>	<b>Encoder format</b>	<b>Supported in file format</b>
	Joint Photographic Experts Group	JPEG (.jpg)
<b>Video Playback</b>	<b>Decoder format</b>	<b>Supported in file format</b>
	MPEG-4 Visual Simple Profile	3GPP (.3gp), MP4 (.mp4)
	H.264	3GPP (.3gp), MP4 (.mp4)
	H.263 Profile 0	3GPP (.3gp)

<b>Video Recording</b>	<b>Encoder format</b>	<b>Supported in file format</b>
	- Video H.263 Profile 0, H.264 Baseline Profile, H.264 High Profile - Audio: AAC-LC stereo Bit rate: 10 Mbps AMR-NB	3GPP (.3gp), MP4 (.mp4)
<b>Audio/Video Streaming</b>	Streaming transport	RTSP according to 3GPP™ HTTP streaming

## Synchronisation (OMA DS, EAS)

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OMA Data Synchronisation protocol versions 1.1.2 and 1.2

OMA Data Formats: vCard 2.1, vCalendar 1.0

Microsoft® Exchange ActiveSync® protocol version 2.5

Microsoft® Exchange ActiveSync® protocol version 12.0

Microsoft® Exchange ActiveSync® protocol version 14.0

Microsoft® Exchange ActiveSync® protocol version 14.1

Related information:

[www.sonymobile.com/developer](http://www.sonymobile.com/developer)

## Trademarks and acknowledgements

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